

Eugene Sun

Education

Harvard University. B.A. cum laude, Applied Mathematics, June 1981.
New York University School of Medicine. M.D. June 1985.

Post-doctoral Training

Residency, Internal Medicine. University of California, San Francisco. 1985-88.
Fellowship, Infectious Disease. University of California, San Francisco. 1988-91.

Licensure and Certification

California State Licensure, 1987.
American Board of Internal Medicine Certification, 1989.
Diplomate in Infectious Diseases, American Board of Internal Medicine, 1990.

Awards

Harvard Society of Scientists and Engineers Scholarship, 1980.
New York State Regents Scholarship in Medicine, 1981.
Alpha Omega Alpha, 1985.
National Research Service Award, NIH, 1990.
Physician Scientist Award, NIH, 1992.
Chairman's Award, Abbott Laboratories, 1996
Chairman's Award, Abbott Laboratories, 1997
President's Award, Abbott Laboratories, 2000
Chairman's Award, Abbott Laboratories, 2000
President's Award, Abbott Laboratories, 2001
President's Award, Abbott Laboratories, 2002

Positions and Appointments

Staff Physician, Infectious Disease Clinic, SF VA Medical Center, 1989-91.
Attending Physician, Infectious Disease Service, SF VA Medical Center, 1990-1994
Attending Physician, Medical Service, SF VA Medical Center, 1993-1994
Assistant Professor of Medicine, UCSF. 1991-1995
Associate Medical Director, Abbott Laboratories. 1994-1997
Venture Head, Antiviral Venture, Abbott Laboratories. 1997-2002
Antiviral Drugs Advisory Committee, Food and Drug Administration. 2001-present
Divisional Vice President, Antiinfective and Virology Development. 2000-2002
Divisional Vice President, Metabolic and Infectious Disease Development. 2002-2003
Divisional Vice President, Global Pharmaceutical Development. 2003-present

Journal Reviews

Archives of Internal Medicine
Journal of Immunology
Molecular and Biochemical Parasitology
Experimental Parasitology
Journal of Parasitology
Infection and Immunity
Biochemical Pharmacology
Journal of AIDS

Invited Presentations

Department of Veterans Affairs symposium, "Concepts in Molecular Medicine." San Francisco, CA, 1994.
Plenary Session, Twenty-first AIDS Clinical Trials Group, Washington, D.C., July 27-31, 1996.
Seventh Annual HIV Speakers' Forum, Tucson, AZ, October 11-12, 1996.
Protease Inhibitors: New Therapeutics and Approaches, Cambridge Healthtech Institute, Baltimore, MD, November 6-7, 1996.
Plenary Session, Twenty-second AIDS Clinical Trials Group, Washington, D.C., December, 1996.
Keystone Symposium on AIDS Pathogenesis, "Challenges of Current and Future Protease Inhibitors," Keystone, Colorado, April 8-13, 1997.
Infectious Disease Society of America, 35th Annual Meeting, "Second Generation HIV Protease Inhibitors," San Francisco, CA, September 13-16, 1997.
International Workshop on Salvage Therapy for HIV Infection, New Orleans, April 16-18, 1998.
American Association of Pharmaceutical Scientists, Symposium on Clinical Pharmacology: Optimizing the Science of Drug Development. "Antiviral Agents," Washington, D.C., September 9-11, 1998.
American Society of Pharmacology and Experimental Therapeutics, "ABT-378 and the continuing therapeutic challenge of HIV," Chicago, June 8, 1999.
International Conference on Antiviral Research, "Clinical Update on ABT-378," Baltimore, April 16, 2000.
Abbott HIV/AIDS Distinguished Lecture Series, September, 2000.
Bio 2001 International Convention, "Developing AIDS Drugs for the New Millennium," San Diego, June 26, 2001.
9th International Symposium of the Society of Chinese Bioscientists in America, "Development of a Novel HIV Protease Inhibitor," Taipei, August 6-10, 2001.
Intercity Grand Rounds, "Resistance to Boosted Protease Inhibitor Regimens," Los Angeles, November 9, 2001.

Most Recent Publications

1. Kempf DJ, Marsh KC, Kumar G, Rodriguez AD, Denissen JF, McDonald E, Kukulka MJ, Hsu A, Granneman GR, Baroldi PA, Sun E, Pizzuti D, Norbeck DW, and Leonard JM. Pharmacokinetic enhancement of inhibitors of the HIV protease by coadministration with ritonavir. *Antimicrob Agents Chemother*, 41:654-660, 1997.
2. Angel JB, Kumar A, Parato K, Filion LG, Diaz-Mitoma F, Daftarian P, Pham B, Sun E, Leonard JM, and Cameron DW. Improvement in Cell Mediated Immune Function During Potent Anti-HIV Therapy with Ritonavir plus Saquinavir. *J Infect Dis* 177:898, 1998.
3. Kempf DJ, Rode RA, Xu Y, Sun E, Chiozzi ME, Valdes J, Japour AJ, Danner S, Boucher C, Molla A, and Leonard JM. The duration of viral suppression during protease inhibitor therapy for HIV-1 infection is predicted by plasma HIV-1 RNA at the nadir. *AIDS* 12(5):F9-14, 1998.
4. Hsu A, Granneman GR, Cao GC, Carothers L, Japour A, El-Shourbagy T, Dennis S, Berg J, Erdman K, Leonard JM, Sun E. Pharmacokinetic interaction between ritonavir and indinavir in healthy volunteers. *Antimicrob Agents Chemother* 42(11):2784, 1998.
5. Sham HL, Kempf DJ, Molla A, Marsh KC, Kumar GN, Chen CM, Kati W, Stewart K, Lal R, Hsu A, Betebenner D, Korneyeva M, Vasavanonda S, McDonald E, Saldivar A, Wideburg N, Chen X, Niu P, Park C, Jayanti V, Grabowski B, Granneman GR, Sun E, Japour AJ, Leonard JM, Plattner JJ, Norbeck DW. ABT-378, a potent second generation inhibitor of the human immunodeficiency virus protease. *Antimicrob Agents Chemother* 42(12):3218, 1998.
6. Molla A, Granneman GR, Sun E, Kempf D. New Frontiers in HIV Protease Inhibitor Therapy. *Antiviral Res* 39(1):1-23, 1998.
7. Cameron DW, Heath-Chiozzi M, Danner S, Cohen C, Kravcik S, Maurath C, Sun E, Henry D, Rode R, Potthoff A, Leonard J, and the Advanced HIV Disease Ritonavir Study Group. Randomised Placebo-controlled Trial of Ritonavir in Advanced HIV-1 Disease. *Lancet* 351:543, 1998.
8. Hsu A, Granneman GR, Cao G, Carothers L, El-Shourbagy T, Baroldi P, Erdman K, Brown F, Sun E, Leonard, JM. Pharmacokinetic Interactions between two HIV protease inhibitors, Ritonavir and Saquinavir. *Clin Pharmacol Ther* 63(4): 453-464, 1998.

9. Lim KC, Sun E, Bahgat M, Bucks D, Guy R, Hinz RS, Cullander C, McKerrow JH. Blockage of skin invasion by schistosome cercariae by serine protease inhibitors. *Am J Trop Med Hyg* 60(3):487-92, 1999.
10. Kumar D, Parato K, Kumar A, Sun E, Cameron DW, Angel JB. Sustained suppression of plasma HIV RNA is associated with an increase in the production of mitogen-induced MIP-1 α and MIP-1 β . *AIDS Res Hum Retroviruses* 15(12):1073-77, 1999.
11. Churchill DR, Pym AS, Galpin S, Foxall R, Stainsby C, Clarke JR, Kaye S, Bloor S, Larder BA, Wills B, Sun E, Babiker AG, Back DJ, Weber JN. The Rabbit study: ritonavir and saquinavir in combination in saquinavir-experienced and previously-untreated patients. *AIDS Res Hum Retroviruses* 15(13):1181-9, 1999.
12. Cameron DW, Japour AJ, Xu Y, Hsu A, Mellors J, Farthing C, Cohen C, Poretz D, Markowitz M, Follansbee S, Angel JB, McMahon D, Ho D, Devanarayanan V, Rode R, Salgo MP, Kempf D, Granneman GR, Leonard JM, Sun E. Ritonavir and Saquinavir Combination Therapy for the Treatment of HIV Infection. *AIDS* 13(2):213-224, 1999.
13. Raines CP, Flexner C, Sun E, Heath-Chiozzi M, Lewis RH, Fields C, Deetz C, Apuzzo L, Eshleman SH, Jackson JB, Gallant JE. Safety, Tolerability, and Antiretroviral Effects of Ritonavir-Nelfinavir Combination Therapy Administered for 48 Weeks. *J Acquir Immune Defic Syndr* 25(4):322-328, 2000.
14. Kempf DJ, Isaacson JD, King MS, Brun S, Xu Y, Real K, Lie Y, Hellmann N, Jertos K, Larder B, Bernstein B, Japour A, Sun E, Rode R. Identification of the Genotypic Changes in HIV Protease that Correlate with Reduced Susceptibility to the Protease Inhibitor ABT-378. *J Virol* 75(16):7462, 2001.
15. Angel JB, Parato KG, Kumar A, Kravcik S, Badley AD, Fex C, Ashby D, Sun E, Cameron DW. Progressive human immunodeficiency virus-specific immune recovery with prolonged viral suppression. *J Infect Dis* 183(4):546-54, 2001.
16. Murphy RL, Brun S, Hicks C, Eron JJ, Gulick R, King M, White C, Benson C, Thompson M, Kessler H, Thommes J, Hammer S, Albrecht M, Real K, Japour A, Sun E. ABT-378/ritonavir plus stavudine and lamivudine for the treatment of antiretroviral-naïve adults with HIV-1 infection: 48-week efficacy and safety results. *AIDS* 15:1-9, 2001.
17. Benson C, Deeks S, Brun S, Xu Y, Real K, Kessler H, Murphy R, Wheeler D, Hicks C, Eron J, Feinberg J, Gulick R, Glesby M, Sax P, Stryker R, Riddler S, Thompson M, Hsu A, Bertz R, Molla A, Mo H, Kempf D, Japour A, Sun E. Safety And Antiviral Activity of Abt-378/R Plus Nevirapine and Two Nucleoside Analogues in Protease Inhibitor-Experienced Patients. *J Infect Dis* 185(5):599-607, 2002.
18. Walmsley S, Bernstein B, King M, Arribas J, Lalonde J, Ruane P, Beall G, Johnson M, Johnson D, Japour A, Brun S, Sun E. A Phase III Randomized, Double-Blind Comparative Study of Lopinavir/ritonavir plus Stavudine and Lamivudine versus Nelfinavir plus Stavudine and Lamivudine in Antiretroviral-naïve HIV-infected patients. *New Engl J Med* 346(26):2039-46, 2002.
19. Kempf DJ, Isaacson JD, King MS, Brun SC, Sylte J, Richards B, Bernstein B, Rode R, Sun E. Analysis of the Virologic Response With Respect to Baseline Viral Phenotype and Genotype in Protease Inhibitor-Experienced HIV-1-Infected Patients Receiving Lopinavir/Ritonavir Therapy. *Antivir Ther* 7(3):165, 2002.
20. Shulman N, Zolopa A, Havlir D, Hsu A, Renz C, Boller S, Jiang P, Rode R, Gallant J, Race E, Kempf D, Sun E. The virtual inhibitory quotient predicts the response to ritonavir boosting of indinavir-based therapy in HIV-1-infected patients with ongoing viremia. *Antimicrob Agents Chemother* 46(12):3907, 2002.
21. Hsu A, Isaacson JD, Brun SC, Bernstein B, Lam W, Bertz R, Foit C, Rynkwicz K, Richards B, King MS, Kempf DJ, Granneman GR, Sun E. Pharmacokinetic/Pharmacodynamic Analysis of Lopinavir/ritonavir in Combination with Efavirenz and Two Reverse Transcriptase Inhibitors in Extensively Pretreated HIV-Infected Patients. *Antimicrob Agents Chemother* 47(1):350-9, 2003.

22. Saez-Llorens X, Violari A, Deetz C, Rode R, Gomez P, Handelsman E, Pelton S, Ramillo O, Cahn P, Chadwick E, Allen U, Arpadi S, Castrejon Q, Bernstein B, Kempf D, Bertz R, Hsu A, Renz C, Sun E. Forty-Eight Week Evaluation Of Lopinavir/Ritonavir, A New Protease Inhibitor, In HIV-Infected Children. *Pediatr Infect Dis J* 22:216-224, 2003.
23. Louie M, Hogan C, Di Mascio M, Hurley A, Simon V, Rooney J, Ruiz N, Brun S, Sun E, Perelson AS, Ho DD, Markowitz M. Determining the Relative Efficacy of Highly Active Antiretroviral Therapy. *J Infect Dis* 187:896, 2003.
24. Markowitz M, Louie M, Hurley A, Sun E, Di Mascio M, Perelson AS, Ho DD. A novel antiviral intervention results in more accurate assessment of human immunodeficiency virus type 1 replication dynamics and T-cell decay in vivo. *J Virol* 77(8):5037-8, 2003.
25. Mo H, Lu L, Dekhtyar T, Stewart KD, Sun E, Kempf D, Molla A. Characterization of Resistant HIV Variants Generated by *in vitro* Passage with lopinavir/ritonavir. *In press, Antiviral Res.*
26. Mo H, Dekhtyar T, Lu L, Staser J, Ng T, Cohen C, Cameron W, Markowitz M, Ho D, Xu Y, Leonard J, Sun E, Kempf D, Japour A, Molla A. Characterization of HIV in patients following long-term antiviral therapy. *Submitted.*
27. Angel JB, Cameron DW, Jiang PX, Xu Y, Rode R, Clhen C, Mellors J, Farthing C, Poretz D, Markowitz M, Ho D, McMahon D, Drennan D, Selness K, Sun E, Ryan J, Japour AJ. Ritonavir and saquinavir combination therapy for the treatment of HIV infection: 3-year follow-up. *Submitted.*
28. Arnaout RA, Sun E, Nowak MA. Relative roles of virus- and immune-mediated mechanisms in turnover of HIV-1 infected cells *in vivo*. *Submitted.*
29. King MS, Walmsley SL, Sherer R, Feinberg J, Sanne I, Cernohous P, Brun SC, Bernstein BM, Montaner JSG, Sun E. Baseline HIV RNA and CD4 cell count predict loss of virologic response to nelfinavir but not lopinavir/ritonavir through 96 weeks in antiretroviral-naïve HIV-infected patients. *Submitted.*
30. Eron JJ, Feinberg J, Kessler HA, Horowitz HW, Witt MD, Carpio FF, Wheeler DA, Ruane P, Mildvan D, Yangco BG, Bertz R, Bernstein B, King M, Sun E. Once-Daily vs. Twice Daily lopinavir/ritonavir in Antiretroviral-naïve patients: 48-week follow-up. *Submitted.*
31. Clumeck N, Becker S, Brun SC, Rockstroh J, Lazzarin A, Girard P-M, Telenti A, Bergmann F, Danner S, Markowitz M, Tubiana R, Carosi G, Bertz R, Sylte J, King M, Kempf D, Sun E. Forty-eight week Evaluation of Safety, Pharmacokinetics, and Antiviral Activity of Lopinavir/ritonavir plus Efavirenz in Multiple HIV Protease Inhibitor Experienced Patients. *Submitted.*

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